12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
WATER TEMPERATURE: October 1994 to April 1998, April to September 2004.
TURBIDITY: August 2003 to current year.
SUSPENDED SEDIMENT DISCHARGE: April 1994 to September 1995. Miscellaneous sediment measurements October 1995 to September 1997.

INSTRUMENTATION.--Water-quality monitor since October 1994 to April 1998, July 2003. Temperature and McVann Instruments Analite 395 turbidity sensors interfaced to an electronic data logger, with 15-minute logging interval.

REMARKS.--
WATER TEMPERATURE: Records good.
TURBIDITY: For water year 2003, records good except Aug. 13-19, which are fair. For water year 2004, records good except Oct. 24-27, Nov. 21-25, Dec. 29 to Jan. 3, Mar. 5-9, 16, 18, 19, May 6-9, which are fair, Jan. 4-13, Mar. 17, 20-30, May 10-13, which are poor.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURE: Maximum 18.5°C, Aug. 8-10, 1996.
TURBIDITY: Maximum, 1,030 FNU, Nov. 19, 2003; minimum, 0.2 FNU, Aug. 6, 2004.
SUSPENDED SEDIMENT CONCENTRATION (April 1994 to September 1995): Maximum daily, 233 mg/L, Dec. 20, 1994; minimum 1 mg/L, Oct. 3, 14, June 30, 1995.
SUSPENDED SEDIMENT DISCHARGE (April 1994 to September 1995): Maximum daily, 7,960 tons, Dec. 20, 1994; minimum daily, 0.76 tons, Sept. 28-30, Oct. 3, 14, June 30, 1995.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 17.8°C, Aug. 10, but may have been higher during periods of missing record; minimum, 7.4°C, Apr. 29.
TURBIDITY: Maximum, 1,040 FNU, Oct. 21-23; minimum, 0.2 FNU, Aug. 6.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR APRIL TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	9.1	8.0	8.6
2	---	---	---	---	---	---	---	---	---	9.3	8.1	8.5
3	---	---	---	---	---	---	---	---	---	9.2	8.3	8.6
4	---	---	---	---	---	---	---	---	---	9.1	8.2	8.5
5	---	---	---	---	---	---	---	---	---	9.6	7.8	8.5
6	---	---	---	---	---	---	---	---	---	9.4	7.8	8.5
7	---	---	---	---	---	---	---	---	---	8.7	7.9	8.4
8	---	---	---	---	---	---	---	---	---	9.4	7.8	8.4
9	---	---	---	---	---	---	---	---	---	9.6	7.8	8.4
10	---	---	---	---	---	---	---	---	---	8.6	7.8	8.2
11	---	---	---	---	---	---	---	---	---	9.9	7.8	8.5
12	---	---	---	---	---	---	---	---	---	9.8	7.8	8.6
13	---	---	---	---	---	---	---	---	---	9.4	8.2	8.6
14	---	---	---	---	---	---	---	---	---	10.0	8.2	8.8
15	---	---	---	---	---	---	---	---	---	9.0	8.4	8.7
16	---	---	---	---	---	---	---	---	---	9.9	8.5	8.9
17	---	---	---	---	---	---	---	---	---	10.2	8.5	9.1
18	---	---	---	---	---	---	---	---	---	10.6	8.8	9.3
19	---	---	---	---	---	---	---	---	---	10.4	9.0	9.4
20	---	---	---	---	---	---	---	---	---	10.6	9.1	9.6
21	---	---	---	---	---	---	---	---	---	9.8	9.2	9.5
22	---	---	---	---	---	---	---	---	---	9.7	9.1	9.4
23	---	---	---	---	---	---	---	---	---	10.7	8.8	9.5
24	---	---	---	---	---	---	---	---	---	10.6	8.8	9.4
25	---	---	---	---	---	---	---	---	---	9.7	8.8	9.2
26	---	---	---	---	---	---	---	---	---	10.0	9.0	9.4
27	---	---	---	---	---	---	---	---	---	9.6	8.9	9.3
28	---	---	---	---	---	---	---	---	---	9.6	8.7	9.1
29	---	---	---	---	---	---	9.3	7.4	8.4	9.8	8.6	9.1
30	---	---	---	---	---	---	9.6	7.5	8.3	9.8	8.6	9.1
31	---	---	---	---	---	---	---	---	---	9.7	8.4	9.0
MONTH	---	---	---	---	---	---	---	---	---	10.7	7.8	8.9

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR APRIL TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.8	8.5	9.0	13.8	11.4	12.3	---	---	---	15.5	14.2	14.8
2	10.4	8.5	9.2	13.0	11.6	12.2	---	---	---	15.8	14.0	14.7
3	10.4	8.8	9.4	14.2	11.9	12.6	---	---	---	16.6	13.8	14.7
4	10.7	9.1	9.6	14.3	11.6	12.6	---	---	---	15.9	13.8	14.6
5	10.0	9.5	9.7	14.3	11.7	12.7	---	---	---	16.5	13.5	14.5
6	10.3	9.2	9.7	14.0	12.1	12.6	---	---	---	15.7	13.4	14.4
7	10.0	9.0	9.5	14.2	12.0	12.8	17.0	14.5	15.2	16.5	13.5	14.6
8	11.0	9.0	9.7	13.4	11.9	12.6	17.4	14.0	15.2	15.3	13.5	14.3
9	10.2	9.3	9.7	13.1	12.1	12.6	17.6	14.1	15.4	16.0	13.7	14.5
10	11.0	9.3	10.0	13.3	12.1	12.6	17.8	14.3	15.5	15.1	13.4	14.2
11	10.4	9.1	9.6	14.1	12.1	12.9	---	---	---	14.8	13.7	14.4
12	10.3	9.1	9.5	14.5	11.9	12.9	---	---	---	14.8	13.4	13.9
13	10.1	9.3	9.7	15.0	12.1	13.2	---	---	---	15.8	13.4	14.3
14	10.3	9.1	9.6	13.9	12.2	12.9	---	---	---	15.0	14.0	14.4
15	11.0	8.9	9.7	14.8	12.3	13.1	---	---	---	14.3	13.4	13.9
16	11.1	9.1	9.8	15.2	12.4	13.4	---	---	---	14.1	13.4	13.6
17	11.3	9.2	10.0	15.6	12.4	13.5	---	---	---	14.2	12.3	13.2
18	11.7	9.7	10.4	15.3	12.5	13.5	---	---	---	12.7	12.0	12.3
19	11.9	9.9	10.6	14.7	12.7	13.5	---	---	---	13.2	11.5	12.1
20	12.1	9.9	10.7	14.7	12.8	13.7	---	---	---	13.3	11.3	11.9
21	12.2	10.0	10.9	16.0	12.7	13.9	---	---	---	13.4	11.2	12.0
22	12.4	10.5	11.2	---	---	---	---	---	---	12.3	11.7	11.9
23	12.2	10.6	11.3	---	---	---	17.1	15.0	15.9	13.2	11.5	12.1
24	12.6	11.1	11.6	---	---	---	16.4	15.2	15.6	13.4	11.2	11.9
25	12.2	11.2	11.5	---	---	---	16.5	15.5	15.9	13.5	11.1	11.9
26	12.9	11.1	11.8	---	---	---	15.9	14.9	15.5	13.6	11.3	12.0
27	13.2	10.9	11.8	---	---	---	16.7	14.6	15.6	13.6	11.2	12.0
28	13.4	10.9	11.9	---	---	---	16.0	14.6	15.1	13.7	11.2	12.0
29	13.6	11.1	12.0	---	---	---	16.7	14.3	15.2	13.2	11.3	11.9
30	13.7	11.2	12.2	---	---	---	17.0	14.4	15.3	13.3	11.0	11.7
31	---	---	---	---	---	---	17.5	14.4	15.4	---	---	---
MONTH	13.7	8.5	10.4	---	---	---	---	---	---	16.6	11.0	13.3

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS
WATER YEAR AUGUST TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	1.0	0.5	0.7	1.6	0.5	0.7
2	---	---	---	---	---	---	1.0	0.5	0.7	1.0	0.5	0.8
3	---	---	---	---	---	---	1.0	0.5	0.6	1.0	0.5	0.7
4	---	---	---	---	---	---	1.0	0.4	0.6	1.0	0.5	0.7
5	---	---	---	---	---	---	0.8	0.4	0.6	0.8	0.3	0.6
6	---	---	---	---	---	---	1.1	0.3	0.6	0.9	0.4	0.6
7	---	---	---	---	---	---	0.9	0.4	0.6	0.9	0.3	0.6
8	---	---	---	---	---	---	0.8	0.5	0.6	1.9	0.4	0.7
9	---	---	---	---	---	---	0.8	0.4	0.6	2.3	0.4	0.7
10	---	---	---	---	---	---	0.7	0.3	0.6	1.3	0.4	0.6
11	---	---	---	---	---	---	0.9	0.4	0.6	1.0	0.5	0.7
12	---	---	---	---	---	---	0.7	0.4	0.5	1.1	0.5	0.8
13	---	---	---	---	---	---	0.7	0.4	0.5	1.3	0.6	0.9
14	---	---	---	---	---	---	0.8	0.4	0.5	1.1	0.6	0.8
15	---	---	---	---	---	---	0.7	0.4	0.6	1.1	0.6	0.8
16	---	---	---	---	---	---	0.9	0.4	0.6	4.1	0.7	0.8
17	---	---	---	---	---	---	0.8	0.5	0.7	1.2	0.6	0.8
18	---	---	---	---	---	---	0.8	0.5	0.7	1.8	0.6	0.9
19	---	---	---	---	---	---	0.9	0.4	0.7	1.3	0.6	0.9
20	---	---	---	---	---	---	1.0	0.5	0.7	1.1	0.4	0.7
21	---	---	---	---	---	---	2.5	0.6	0.8	1.0	0.4	0.6
22	---	---	---	---	---	---	2.2	0.7	0.9	0.9	0.4	0.6
23	---	---	---	---	---	---	13	0.7	0.9	1.1	0.5	0.6
24	---	---	---	---	---	---	2.7	0.7	0.9	1.0	0.4	0.6
25	---	---	---	---	---	---	2.3	0.6	0.9	2.3	0.4	0.6
26	---	---	---	---	---	---	1.1	0.6	0.8	0.9	0.3	0.6
27	---	---	---	---	---	---	0.9	0.5	0.7	0.9	0.4	0.6
28	---	---	---	---	---	---	1.0	0.6	0.8	1.0	0.5	0.6
29	---	---	---	---	---	---	1.2	0.6	0.8	1.2	0.5	0.6
30	---	---	---	---	---	---	1.1	0.5	0.7	1.0	0.4	0.6
31	---	---	---	---	---	---	1.0	0.5	0.7	---	---	---
MAX	---	---	---	---	---	---	13	0.7	0.9	4.1	0.7	0.9
MIN	---	---	---	---	---	---	0.7	0.3	0.5	0.8	0.3	0.6

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	4.2	0.4	0.6	610	260	390	460	310	380	55	29	44
2	4.2	0.3	0.5	420	200	290	400	270	340	52	31	43
3	1.6	0.4	0.6	450	220	340	330	260	300	57	29	43
4	0.8	0.3	0.6	450	180	300	320	220	260	52	25	37
5	0.9	0.5	0.6	370	170	250	290	210	260	44	22	34
6	1.1	0.5	0.7	380	170	260	350	260	300	45	25	35
7	3.8	0.7	1.0	320	160	220	360	270	300	48	26	37
8	1.5	0.8	1.1	290	120	200	310	210	250	53	24	35
9	4.6	1.1	1.6	230	90	140	260	160	220	44	25	34
10	4.7	2.0	2.6	170	83	120	240	140	190	51	32	43
11	3.0	1.0	1.9	320	86	130	220	120	160	54	32	44
12	24	1.4	4.3	180	85	130	180	100	140	55	34	44
13	13	4.6	9.1	170	88	120	170	98	130	53	34	45
14	9.3	4.1	5.9	160	78	130	150	83	120	130	38	76
15	6.9	3.2	4.5	140	71	120	150	74	120	210	120	160
16	>400	3.4	44	160	68	97	150	89	120	210	130	170
17	>400	>400	>400	190	74	120	140	86	110	220	130	180
18	>400	>400	>400	1,000	160	710	130	84	110	200	120	150
19	>400	>400	>400	1,030	980	1,010	130	62	92	170	100	140
20	>400	>400	>400	1,010	870	990	110	62	90	150	90	120
21	>1,040	---	---	990	630	860	110	53	86	140	80	100
22	1,040	1,030	1,030	930	630	750	94	50	76	120	78	94
23	1,040	1,000	1,030	840	480	630	94	53	72	120	68	87
24	1,030	970	1,010	670	370	510	94	60	77	95	48	64
25	1,010	910	980	570	370	460	92	48	71	81	38	58
26	990	650	950	520	380	450	82	48	68	80	39	60
27	970	620	830	460	280	400	81	50	68	78	43	60
28	920	610	750	560	270	390	79	42	67	75	43	55
29	810	470	670	600	430	530	76	42	63	96	41	57
30	750	410	590	570	390	460	67	36	57	150	68	110
31	620	270	470	---	---	---	63	31	49	120	90	110
MAX	>1,040	---	---	1,030	980	1,010	460	310	380	220	130	180
MIN	0.8	---	---	140	68	97	63	31	49	44	22	34
	FEBRUARY			MARCH			APRIL			MAY		
1	150	93	110	13	7.7	11	4.8	2.9	3.7	7.9	4.4	5.5
2	140	75	100	12	6.7	10	4.3	2.6	3.6	10	4.9	6.1
3	110	70	87	34	7.6	11	5.0	2.8	3.4	10	6.4	7.5
4	110	60	79	12	7.3	9.9	4.0	2.4	3.1	11	7.2	9.2
5	96	54	73	13	7.4	10	4.2	2.2	2.9	11	6.9	8.4
6	93	54	71	10	6.3	8.7	4.1	2.3	2.8	10	7.0	8.4
7	80	42	59	13	6.9	10	4.0	2.3	2.8	9.5	6.8	8.0
8	78	40	58	13	7.8	10	3.8	2.2	2.6	9.5	6.8	7.9
9	68	38	53	13	7.1	9.8	3.3	2.0	2.5	8.6	5.9	7.4
10	62	32	48	10	6.1	8.4	3.3	1.7	2.4	7.9	6.1	7.2
11	55	28	41	9.6	5.7	8.1	3.8	1.6	2.6	8.1	5.8	7.1
12	47	28	38	8.6	5.4	7.5	6.8	1.8	2.7	7.4	5.2	6.6
13	43	27	36	8.3	4.6	6.9	4.4	2.1	2.7	7.3	5.2	6.2
14	39	25	33	7.7	4.4	6.4	4.8	2.2	2.6	6.2	4.4	5.4
15	38	22	30	7.1	4.0	5.7	3.6	2.2	2.9	6.0	3.8	5.3
16	35	21	26	6.7	3.8	5.6	3.6	2.4	2.9	5.8	3.8	5.1
17	31	19	26	5.7	2.8	4.9	3.6	2.2	2.8	6.3	3.4	5.0
18	42	23	28	6.4	3.3	5.3	3.4	2.1	2.6	6.3	3.8	4.9
19	30	16	25	6.0	3.3	4.7	2.9	1.8	2.5	10	4.9	6.0
20	26	18	23	5.3	2.7	4.1	2.9	1.8	2.4	27	5.6	6.8
21	24	16	20	4.6	2.6	3.9	2.7	1.9	2.3	9.0	6.0	7.3
22	24	14	19	4.7	3.0	4.0	2.6	1.7	2.2	9.1	5.8	8.0
23	22	14	18	4.8	2.4	3.8	2.5	1.6	2.1	10	6.0	7.8
24	22	13	18	7.0	2.8	4.1	2.5	1.6	2.0	8.8	5.5	7.2
25	19	12	16	5.1	2.5	3.7	2.4	1.4	2.0	8.4	5.9	6.8
26	18	11	15	5.3	2.9	3.9	2.9	1.3	2.2	11	5.7	8.4
27	17	9.8	15	4.9	2.8	4.0	75	1.8	3.2	12	6.8	8.9
28	15	8.8	13	5.4	2.8	4.5	---	---	---	12	8.5	10
29	16	8.7	13	5.5	3.0	4.4	---	---	---	14	8.9	11
30	---	---	---	9.5	3.1	4.2	5.7	3.3	4.5	12	9.1	10
31	---	---	---	5.5	3.2	4.1	---	---	---	12	7.8	10
MAX	150	93	110	34	7.8	11	---	---	---	27	9.1	11
MIN	15	8.7	13	4.6	2.4	3.7	---	---	---	5.8	3.4	4.9

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10	6.6	8.9	5.0	2.3	3.5	1.5	0.6	1.0	6.6	4.0	5.1
2	10	6.3	8.6	4.5	2.4	3.5	1.4	0.6	0.9	5.7	3.0	4.1
3	9.1	6.0	7.8	4.4	2.6	3.5	1.4	0.5	0.8	4.1	2.5	3.0
4	9.5	6.0	7.9	3.8	2.2	3.1	1.0	0.4	0.7	3.5	1.7	2.5
5	9.9	7.0	8.2	3.7	2.1	2.7	1.3	0.4	0.6	2.8	1.5	2.1
6	9.9	6.9	8.4	3.8	2.0	2.8	3.4	0.2	1.5	2.5	1.4	1.9
7	11	6.8	8.2	3.9	2.0	2.6	2.1	0.7	1.4	2.4	1.3	1.8
8	9.6	6.1	7.2	3.4	1.9	2.6	2.1	0.9	1.4	2.1	1.0	1.6
9	8.9	6.1	7.4	2.9	1.6	2.3	2.1	0.9	1.3	2.2	1.2	1.7
10	8.7	5.6	6.9	3.4	1.6	2.2	1.8	0.9	1.3	3.5	1.2	1.7
11	7.7	5.1	6.0	2.9	1.7	2.1	1.8	0.7	1.1	41	1.8	10
12	6.8	4.8	5.6	2.9	1.6	2.0	1.5	0.4	1.0	38	15	25
13	8.8	4.8	5.8	2.8	1.5	2.0	1.4	0.4	0.9	32	2.9	14
14	6.6	3.7	5.1	2.6	1.4	1.9	1.5	0.6	0.9	9.1	2.6	4.1
15	8.1	3.8	4.7	2.5	1.3	1.8	1.9	0.4	0.8	25	3.9	14
16	5.2	3.5	4.4	2.2	1.4	1.7	1.1	0.4	0.7	20	9.0	12
17	5.4	3.3	4.0	2.4	1.2	1.7	1.2	0.4	0.7	16	8.9	12
18	9.3	3.1	4.4	2.0	1.3	1.7	1.1	0.4	0.7	13	7.3	11
19	5.7	3.1	4.1	1.9	1.1	1.5	1.0	0.4	0.6	11	6.2	8.3
20	5.2	3.1	4.0	5.7	1.0	1.5	1.0	0.4	0.7	8.0	4.2	6.4
21	5.6	3.6	4.1	2.0	0.9	1.4	1.6	0.4	0.6	6.3	3.2	4.8
22	5.1	3.1	4.2	1.8	0.8	1.3	2.4	0.4	1.1	5.1	3.0	4.0
23	6.6	3.6	4.7	2.1	1.0	1.4	2.1	0.5	1.1	43	2.7	3.5
24	7.8	3.7	5.4	1.8	0.9	1.3	3.5	1.0	1.6	4.3	1.8	2.7
25	6.7	3.1	5.4	1.7	0.9	1.2	14	2.5	6.9	2.9	1.5	2.3
26	6.5	3.9	5.3	1.7	0.8	1.2	17	10	15	2.7	1.4	2.0
27	5.9	3.4	4.9	1.6	0.6	1.1	17	3.5	10	2.4	1.3	1.8
28	5.7	2.9	4.1	1.8	0.7	1.0	13	7.3	11	2.2	1.2	1.7
29	5.0	2.8	4.0	6.3	0.6	1.3	10	4.9	7.1	2.0	1.1	1.6
30	4.7	2.6	3.7	1.8	0.9	1.2	8.1	4.7	6.5	1.8	0.9	1.4
31	---	---	---	1.7	0.8	1.1	6.7	3.7	5.3	---	---	---
MAX	11	7.0	8.9	6.3	2.6	3.5	17	10	15	43	15	25
MIN	4.7	2.6	3.7	1.6	0.6	1.0	1.0	0.2	0.6	1.8	0.9	1.4

> Actual value is known to be greater than the value shown